

1/1 - (C) FILE BIOSIS
on STN

AN - 2004:19507 BIOSIS

DN - PREV200400011381

TI - A Small Molecule Derived from Fibrinogen, Bbeta15-42, Reduces Myocardial Inflammation and Injury Via Inhibition of the Adhesion Molecule VE-Cadherin.

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SO - Anesthesiology Abstracts of Scientific Papers Annual Meeting, (2003) No. 2003, pp. Abstract No. A-744. <http://www.asa-abstracts.com>.
cd-rom.
Meeting Info.: 2003 Annual Meeting of the American Society of Anesthesiologists. San Francisco, CA, USA. October 11-15, 2003.
American Society of Anesthesiologists.

DT - Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)

LA - English

ED - Entered STN: 24 Dec 2003
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AB - Sepsis and myocardial ischemia-reperfusion activate the clotting system. This triggers inflammation, represented by the activation of adhesion molecules (e.g. vascular-endothelial (VE)-cadherin) and finally cell damage (Coughlin SR: Thrombin signaling and protease-activated receptors. Nature, 2000). Interventions for myocardial infarction aim to reperfuse the ischemic area in order to save heart muscle. Although reperfusion is the prerequisite for tissue salvage, the re-initiation of blood flow causes irreversible tissue damage (reperfusion injury). This is largely mediated through a inflammatory reaction in the myocardium. In an acute rat model of coronary artery occlusion (25 min) and reperfusion (2 h), we show that intravenous administration of the fibrin-derived peptide Bbeta15-42 (2.4 mg/kg) significantly reduces infarct size (control: 70+-11, n=8; Bbeta15-42: 42+-9*, n=8) and the influx of inflammatory cells into the myocardium (control: 460+-213; Bbeta15-42: 272+-107*). In vitro (ELISA), we show that the peptide Bbeta15-42 competes with the N-terminal disulfide knot of fibrin (NDSK) for binding to recombinant VE-cadherin. Statistics ANOVA, Bonferroni's test. Data are presented as mean+-SD. *P<0.05. In conclusion, results from our in vivo and in vitro studies reveal four major findings: Fibrinogen-derived products (1) are pro-inflammatory, (2) mediate its pro-inflammatory effects via interaction with VE-cadherin, and (3) play a pathogenic role in myocardial reperfusion injury. (4) The pathogenic effects of fibrinogen-derived products are blocked by peptide Bbeta15-42. Anesthesiology 2003; 99: A744.

CC - General biology - Symposia, transactions and proceedings 00520
Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Pathology - Therapy 12512
Cardiovascular system - Physiology and biochemistry 14504
Cardiovascular system - Heart pathology 14506
Cardiovascular system - Blood vessel pathology 14508
Muscle - Physiology and biochemistry 17504

Pharmacology - General 22002
 Pharmacology - Cardiovascular system 22010
 Medical and clinical microbiology - Bacteriology 36002

IT - Major Concepts

Cardiovascular System (Transport and Circulation); Pharmacology

IT - Parts, Structures, & Systems of Organisms

coronary artery: circulatory system, occlusion; heart:
 circulatory system; inflammatory cells, influx; myocardium:
 circulatory system, muscular system

IT - Diseases

myocardial infarction: heart disease, vascular disease, drug
 therapy

Myocardial Infarction (MeSH)

IT - Diseases

myocardial ischemia: heart disease, vascular disease

Myocardial Ischemia (MeSH)

IT - Diseases

sepsis: bacterial disease

Sepsis (MeSH)

IT - Chemicals & Biochemicals

B-beta-(15-42): cardiovascular-drug, fibrinogen-derived small
 molecule; fibrin amino-terminal disulfide knot; fibrinogen;
 vascular-endothelial-cadherin: adhesion molecule, inhibition

IT - Methods & Equipment

ANOVA: mathematical and computer techniques; Bonferroni's test:
 mathematical and computer techniques; ELISA: immunologic
 techniques, laboratory techniques

IT - Miscellaneous Descriptors

inflammation; inflammatory reaction; injury reduction; myocardial
 inflammation reduction

ORGN- Classifier

Muridae 86375

Super Taxa

Rodentia; Mammalia; Vertebrata; Chordata; Animalia

Organism Name

rat (common): animal model

Taxa Notes

Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman
 Mammals, Rodents, Vertebrates